

USDA/GIPSA Proficiency Program
Testing for the Presence of Biotechnology Events in Corn and Soybeans
October 2006 Sample Distribution Results

Purpose of USDA/GIPSA Proficiency Program

Through the USDA/GIPSA Proficiency Program, USDA seeks to improve the overall performance of testing for biotechnology-derived grains and oil seeds. The USDA/GIPSA Proficiency Program helps organizations identify areas of concern and take corrective actions to improve testing accuracy, capability and reliability.

Program Description

In this round of the USDA/GIPSA Proficiency Program one set of samples was used for both qualitative and quantitative analyses. The samples were fortified with various combinations and concentrations of transgenic events, and participants had the choice of providing qualitative and/or quantitative results. Scoring of the participant's results was done by computing the "percentage of correctly reported transgenic events" in the samples.

Sample Composition

The corn samples contained various combinations and concentrations of the following transgenic events: T25, CBH351, MON810, GA21, E176, Bt11, NK603, Herculex, and MON863; or, no events (i.e., negative corn sample). The various transgenic concentration levels were produced on a percentage weight-weight basis (% w/w). A calculated amount of ground transgenic corn was mixed with a calculated amount of non-transgenic corn to produce concentrations from 0.1% to 5.0% of the event. The soybean samples were either non-transgenic soybeans, or fortified soybeans samples containing 0.1%, or 0.5% of the transgenic glyphosate-tolerant soybeans (RoundUp Ready®). Each participant received six corn samples and three soybean samples. Each sample contained approximately 20 grams of ground material.

Program Participants

Participants included organizations from Africa, Asia, Europe, North America, and South America. Each participant received a study description and a data report form by electronic mail, and included with the samples. Participants submitted results by electronic mail, FAX, or regular mail. No analytical methodologies were specified, and organizations used both DNA- and protein-based testing technologies. Fifty-seven organizations participated in the October 2006 round of proficiency testing.

- Nineteen participants submitted **qualitative** results only,
- Eight participants submitted **quantitative** results only, and
- Thirty participants submitted a combination of **qualitative** and **quantitative** results.

In this report, participating organizations are identified by a confidential "Participant Identification Number." Appendix I identifies those organizations who gave GIPSA permission to list them as participants in the USDA/GIPSA Proficiency Program.

Data Summary Results

Data submitted by the participants are summarized in this report primarily in tables and figures. Participants reported their results on a qualitative basis, quantitative basis, or a combination of both qualitative and quantitative bases. Qualitative results were reported as the presence or absence of a particular event in each sample. Quantitative results were reported as the concentration of a particular event in the sample. Due to the complexity of the data, this report summarizes the data as follows:

Qualitative Data Summaries. This section summarizes qualitative sample analysis data:

- Table 1: Qualitative results for corn fortified with 35S for all participants (DNA-based assays).
- Table 2: Percentage of correct results in qualitative reports for 35S for all participants.
- Table 3: Qualitative results for corn fortified with NOS for all participants (DNA-based assays).
- Table 4: Percentage of correct results in qualitative reports for NOS for all participants.
- Table 5: Qualitative results for corn fortified with T25 for all participants (DNA-based assays).
- Table 6: Percentage of correct results in qualitative reports for T25 for all participants.
- Table 7: Qualitative results for corn fortified GA21 with for all participants (DNA-based assays).
- Table 8: Percentage of correct results in qualitative reports for GA21 for all participants.
- Table 9: Qualitative results for corn fortified with CBH351 for all participants (DNA-based assays).
- Table 10: Percentage of correct results in qualitative reports for CBH351 for all participants.
- Table 11: Qualitative results for corn fortified with MON810 for all participants (DNA-based assays).
- Table 12: Percentage of correct results in qualitative reports for MON810 for all participants.
- Table 13: Qualitative results for corn fortified with E176 for all participants (DNA-based assays).
- Table 14: Percentage of correct results in qualitative reports for E176 for all participants.
- Table 15: Qualitative results for corn fortified with Bt11 for all participants (DNA-based assays).
- Table 16: Percentage of correct results in qualitative reports for Bt11 for all participants.
- Table 17: Qualitative results for corn fortified with NK603 for all participants. (DNA-based assays).

- Table 18: Percentage of correct results in qualitative reports for NK603 for all participants.
- Table 19: Qualitative results for corn fortified with Herculex for all participants (DNA-based assays).
- Table 20: Percentage of correct results in qualitative reports for Herculex for all participants.
- Table 21: Qualitative results for corn fortified with MON863 for all participants (DNA-based assays).
- Table 22: Percentage of correct results in qualitative reports for MON863 for all participants.
- Table 23: Qualitative results for soybeans fortified with CP4 EPSPS (Roundup Ready) for all participants (DNA-based assays).
- Table 24: Percentage of correct results in qualitative reports for CP4 EPSPS for all participants.
- Table 25: Percentage of correct results in qualitative reports for each transgenic event for all participants (DNA-based assays).
- Figure 1: Summary data of all participants for each event combined with the number of results submitted for that particular event (DNA-based assays).
- Table 26: Qualitative results for corn fortified with T25 for all participants using Lateral Flow Strip (LFS) Testing (Protein-based testing).
- Table 27: Percentage of correct results in qualitative reports for T25 for all participants using Lateral Flow Strip (LFS) Testing (Protein-based testing).
- Table 28: Qualitative results for corn fortified with CBH351 for all participants using Lateral Flow Strip (LFS) Testing (Protein-based testing).
- Table 29: Percentage of correct results in qualitative reports for CBH351 for all participants using Lateral Flow Strip (LFS) Testing (Protein-based testing).
- Table 30: Qualitative results for corn fortified with NK603 for all participants using Lateral Flow Strip (LFS) Testing (Protein-based testing).
- Table 31: Percentage of correct results in qualitative reports for NK603 for all participants using Lateral Flow Strip (LFS) Testing (Protein-based testing).
- Table 32: Qualitative results for corn fortified with Herculex for all participants using Lateral Flow Strip (LFS) Testing (Protein-based testing).
- Table 33: Percentage of correct results in qualitative reports for Herculex for all participants using Lateral Flow Strip (LFS) Testing (Protein-based testing).
- Table 34: Qualitative results for corn fortified with MON863 for all participants using Lateral Flow Strip (LFS) Testing (Protein-based testing).

- Table 35: Percentage of correct results in qualitative reports for MON863 for all participants using Lateral Flow Strip (LFS) Testing (Protein-based testing).
- Table 36: Qualitative results for corn fortified with Cry1Ab for all participants using Lateral Flow Strip (LFS) Testing (Protein-based testing).
- Table 37: Qualitative results for soybeans fortified with CP4EPSPS for all participants using Lateral Flow Strip (LFS) Testing and Enzyme-Linked Immunosorbent Assay (ELISA) Testing (Protein-based testing).
- Table 38: Percentage of correct results in qualitative reports for CP4EPSPS for all participants using Lateral Flow Strip (LFS) Testing and Enzyme-Linked Immunosorbent Assay (ELISA) Testing (Protein-based testing).

Quantitative Data Summaries. This section summarizes quantitative sample analysis data:

- Table 39: Quantitative results and z-scores for corn fortified with T25 for all participants (DNA-based assays).
- Table 40: Quantitative results and z-scores for corn fortified with MON810 for all participants (DNA-based assays).
- Table 41: Quantitative results and z-scores for corn fortified with GA21 for all participants (DNA-based assays).
- Table 42: Quantitative results and z-scores for corn fortified with E176 for all participants (DNA-based assays).
- Table 43: Quantitative results and z-scores for corn fortified with Bt11 for all participants (DNA-based assays).
- Table 44: Quantitative results and z-scores for corn fortified with Herculex for all participants (DNA-based assays).
- Table 45: Quantitative results and z-scores for corn fortified with NK603 for all participants (DNA-based assays).
- Table 46: Quantitative results and z-scores for corn fortified with MON8631 for all participants (DNA-based assays).
- Table 47: Quantitative results and z-scores for corn fortified with CBH351 for all participants (DNA-based assays).
- Table 48: Quantitative results for soybeans fortified with CP4EPSPS for all participants using Enzyme-Linked Immunosorbent Assay (ELISA) Testing (Protein-based testing).
- Table 49: Quantitative results and z-scores for soybeans fortified with CP4 EPSPS for all participants (DNA-based assays).
- Table 50: Descriptive statistics for participants reported quantifications relative to GIPSA fortification levels using DNA-based assays.
- Appendix I: List of organizations who wished to be identified as a participant in the GIPSA October 2006 Proficiency Program.

Table 1: Qualitative results for corn fortified with 35S for all participants (DNA-based assays). (N=negative, P=positive)

35S	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Participant #	N	P	P	P	P	P
1754	N	P	P	P	P	P
1763	N	P	P	P	P	P
1769	N	P	P	P	P	P
1770	N	P	P	P	P	P
1773	N	P	P	P	P	P
1778	N	P	P	P	P	P
1781	N	P	P	P	P	P
1785	N	P	P	P	P	P
1786	N	P	P	P	P	P
1854	N	P	P	P	N	N
1858	N	P	P	P	P	P
1859	N	P	P	P	P	P
1870	N	P	P	P	P	P
1871	N	P	P	P	P	P
1875	N	P	P	P	P	P
1892	N	P	P	P	P	P
1895	N	P	P	P	P	P
2033	N	P	P	P	P	P
2034	N	P	P	P	P	P
2044	N	P	P	P	P	P
2050	N	P	P	P	P	P
2054	N	P	P	P	P	P
2057	N	P	P	P	P	P
2075	N	P	P	P	P	P
2095	N	P	P	P	P	P
2098	N	P	P	P	P	P
2100	P	P	P	P	P	P
2108	N	P	P	N	P	P
2112	N	P	P	P	P	P
2113	N	P	P	P	P	P
2129	N	P	P	P	P	P
2132	N	P	P	P	P	P
2692	N	P	P	P	P	P
2693	N	P	P	P	P	P
2707	N	P	P	P	P	P
2716	N	P	P	P	P	P
2719	N	P	P	P	P	P
2721	N	P	P	P	P	P
2724	N	P	P	P	P	P
2726	N	P	P	P	P	P

Number of Results	39	39	39	39	39	39
# Negative	38	0	0	1	1	1
# Positive	1	39	39	38	38	38
% Correct	97.4%	100.0%	100.0%	97.4%	97.4%	97.4%
% Incorrect	2.6%	0.0%	0.0%	2.6%	2.6%	2.6%

Table 2: Percentage of correct results in qualitative reports for 35S for all participants.
Table 2 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	234
# Reported Incorrect	4
% Correct	98.3%
# of Provided Positives (P)	193
# of False Negatives	3
%False Negative	1.5%
# of Provided Negatives (N)	41
# of False Positives	1
%False Positive	2.4%

Table 3: Qualitative results for corn fortified with NOS for all participants (DNA-based assays). (N=negative, P=positive)

NOS	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Participant #	N	P	P	P	P	P
1754	N	P	P	P	P	P
1763	N	P	P	P	P	P
1769	N	P	P	P	P	P
1770	N	P	P	P	P	P
1773	N	P	P	P	P	P
1778	N	P	P	P	P	P
1781	N	P	P	P	P	P
1785	N	P	P	P	P	P
1786	N	P	P	P	P	P
1854	N	P	P	P	P	P
1858	N	P	P	P	P	P
1859	N	P	P	P	P	P
1870	N	P	P	P	P	P
1871	N	P	P	P	P	P
1875	N	P	P	P	P	P
1892	N	P	P	P	P	P
1895	N	P	P	P	P	P
2033	N	P	P	P	P	P
2034	N	P	P	P	P	P
2044	N	P	P	P	P	P
2050	N	P	P	P	P	P
2054	N	P	P	P	P	P
2057	N	P	P	P	P	P
2095	N	N	P	P	P	P
2098	N	P	P	P	P	P
2108	N	P	P	P	P	P
2112	N	P	P	P	P	P
2113	N	P	P	P	P	P
2129	N	P	P	P	P	P
2132	N	N	P	N	P	N
2692	N	P	P	P	P	P
2707	N	P	P	P	P	P
2716	N	P	P	P	P	P
2717	P	P	P	P	P	P
2719	N	P	P	P	P	P
2721	N	P	P	N	P	P
2724	N	P	P	P	P	P
2726	N	P	P	P	P	P

Number of Results	37	37	37	37	37	37
# Negative	36	2	0	2	0	1
# Positive	1	35	37	35	37	36
% Correct	97.3%	94.6%	100.0%	94.6%	100.0%	97.3%
% Incorrect	2.7%	5.4%	0.0%	5.4%	0.0%	2.7%

Table 4: Percentage of correct results in qualitative reports for NOS for all participants.
Table 4 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	222
# Reported Incorrect	6
% Correct	97.3%
# of Provided Positives (P)	181
# of False Negatives	5
%False Negative	2.7%
# of Provided Negatives (N)	41
# of False Positives	1
%False Positive	2.4%

Table 5: Qualitative results for corn fortified with T25 for all participants (DNA-based assays). (N=negative, P=positive)

T25	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Participant #	0.0%	1.0%	0.0%	0.0%	0.1%	5.0%
1781	N	P	N	N	P	P
1785	N	P	N	N	P	P
1786	N	P	P	N	P	P
1854	N	N	P	N	N	P
1859	N	P	N	N	P	P
1892	N	P	P	N	P	P
1895	N	P	N	N	P	P
2034	N	P	P	N	P	P
2054	N	P	N	N	P	P
2060	N	P	P	N	P	P
2075	N	P	P	N	N	P
2112	N	P	N	N	P	P
2113	N	P	N	N	P	P
2132	N	P	P	N	P	N
2694	N	P	N	N	P	P
2707	N	P	N	N	P	P
2716	N	P	N	N	P	P
2726	N	P	N	N	P	P
2808	N	P	P	N	P	P

Number of Results	19	19	19	19	19	19
# Negative	19	1	11	19	2	1
# Positive	0	18	8	0	17	18
% Correct	100.0%	94.7%		100.0%	89.5%	94.7%
% Incorrect	0.0%	5.3%		0.0%	10.5%	5.3%

Table 6: Percentage of correct results in qualitative reports for T25 for all participants.
Table 6 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	114
# Reported Incorrect	4
% Correct	96.5%
# of Provided Positives (P)	53
# of False Negatives	4
%False Negative	7.0%
# of Provided Negatives (N)	42
# of False Positives	0
%False Positive	0.0%

Table 7: Qualitative results for corn fortified with GA21 for all participants (DNA-based assays). (N=negative, P=positive)

GA21	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Participant #	0.0%	0.0%	1.5%	0.1%	1.5%	0.1%
1785	N	N	P	P	P	P
1786	N	N	P	P	P	P
1854	P	N	P	P	N	P
1859	N	N	P	P	P	P
1892	N	N	P	P	P	P
1895	N	N	P	P	P	P
2034	N	N	P	P	P	P
2054	N	N	P	P	P	P
2060	N	N	P	P	P	P
2075	N	N	P	P	P	P
2095	N	N	N	N	N	N
2112	N	N	P	P	P	P
2113	N	N	P	P	P	P
2692	N	N	P	P	P	P
2707	N	N	P	P	P	P
2726	N	N	P	N	P	N

Number of Results	16	16	16	16	16	16
# Negative	15	16	1	2	2	2
# Positive	1	0	15	14	14	14
% Correct	93.8%	100.0%	93.8%	87.5%	87.5%	87.5%
% Incorrect	6.3%	0.0%	6.3%	12.5%	12.5%	12.5%

Table 8: Percentage of correct results in qualitative reports for GA21 for all participants.
Table 12 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	96
# Reported Incorrect	8
% Correct	91.7%
# of Provided Positives (P)	58
# of False Negatives	7
%False Negative	10.8%
# of Provided Negatives (N)	38
# of False Positives	1
%False Positive	2.6%

Table 9: Qualitative results for corn fortified with CBH351 for all participants (DNA-based assays). (N=negative, P=positive)

CBH351	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Participant #	0.0%	0.0%	0.0%	0.1%	0.0%	1.5%
1769	N	N	N	N	N	P
1770	N	N	N	P	N	P
1785	N	N	N	P	N	P
1786	N	N	N	P	N	P
1854	P	P	P	P	P	P
1859	N	N	N	P	N	P
1892	N	N	N	P	N	P
1895	N	N	N	P	N	P
2033	N	N	N	N	N	N
2034	N	N	N	P	N	P
2060	N	N	N	P	N	P
2075	N	N	N	P	N	P
2095	N	N	N	P	N	P
2098	N	N	N	P	N	P
2113	N	N	N	P	N	P
2692	N	N	N	P	N	P
2694	N	N	N	P	N	P
2707	N	N	N	P	N	P
2726	N	N	N	P	N	P

Number of Results	19	19	19	19	19	19
# Negative	18	18	18	2	18	1
# Positive	1	1	1	17	1	18
% Correct	94.7%	94.7%	94.7%	89.5%	94.7%	94.7%
% Incorrect	5.3%	5.3%	5.3%	10.5%	5.3%	5.3%

Table 10: Percentage of correct results in qualitative reports for CBH351 for all participants. Table 8 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	114
# Reported Incorrect	7
% Correct	93.9%
# of Provided Positives (P)	39
# of False Negatives	3
%False Negative	7.1%
# of Provided Negatives (N)	75
# of False Positives	4
%False Positive	5.1%

Table 11: Qualitative results for corn fortified with MON810 for all participants (DNA-based assays). (N=negative, P=positive)

MON810 Participant #	Sample 1 0.0%	Sample 2 0.0%	Sample 3 0.4%	Sample 4 0.1%	Sample 5 5.0%	Sample 6 0.5%
1785	N	N	P	P	P	P
1786	N	N	P	P	P	P
1854	N	P	P	P	P	P
1859	N	N	P	P	P	P
1892	N	N	P	P	P	P
1895	N	P	P	P	P	P
2034	N	N	P	P	P	N
2054	N	P	P	P	P	P
2060	N	P	P	P	P	P
2075	N	P	P	P	P	P
2095	N	N	P	N	P	N
2112	N	N	P	P	P	P
2113	N	P	N	N	P	P
2132	N	N	P	P	P	P
2692	N	P	P	P	P	P
2707	N	N	P	P	P	P
2724	N	N	P	P	P	P
2808	N	P	P	P	P	P

Number of Results	18	18	18	18	18	18
# Negative	18	10	1	2	0	2
# Positive	0	8	17	16	18	16
% Correct	100.0%	55.6%	94.4%	88.9%	100.0%	88.9%
% Incorrect	0.0%	44.4%	5.6%	11.1%	0.0%	11.1%

Table 12: Percentage of correct results in qualitative reports for MON810 for all participants. Table 10 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	108
# Reported Incorrect	13
% Correct	88.0%
# of Provided Positives (P)	75
# of False Negatives	5
%False Negative	6.3%
# of Provided Negatives (N)	33
# of False Positives	0
%False Positive	0.0%

Table 13: Qualitative results for corn fortified with E176 for all participants (DNA-based assays). (N=negative, P=positive)

E176 Participant #	Sample 1 0.0%	Sample 2 0.0%	Sample 3 0.8%	Sample 4 0.1%	Sample 5 0.5%	Sample 6 0.0%
1785	N	N	P	P	P	N
1786	N	N	P	P	P	N
1854	P	N	P	P	P	N
1858	N	N	P	P	P	N
1859	N	N	P	P	P	N
1892	N	N	P	P	P	N
1895	N	N	P	P	P	N
2034	N	N	P	P	P	N
2054	N	N	P	P	P	N
2075	N	N	P	P	P	N
2095	N	N	P	P	P	N
2112	N	N	P	P	P	N
2113	N	N	P	P	P	N
2132	N	N	P	P	P	N
2692	N	N	P	P	P	N
2707	N	N	P	P	P	N
2724	N	N	P	N	P	N
2808	N	N	P	P	P	N

Number of Results	18	18	18	18	18	18
# Negative	17	18	0	1	0	18
# Positive	1	0	18	17	18	0
% Correct	94.4%	100.0%	100.0%	94.4%	100.0%	100.0%
% Incorrect	5.6%	0.0%	0.0%	5.6%	0.0%	0.0%

Table 14: Percentage of correct results in qualitative reports for E176 for all participants.
 Table 14 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	108
# Reported Incorrect	2
% Correct	98.1%
# of Provided Positives (P)	54
# of False Negatives	1
%False Negative	1.8%
# of Provided Negatives (N)	54
# of False Positives	1
%False Positive	1.8%

Table 15: Qualitative results for corn fortified with Bt11 for all participants (DNA-based assays). (N=negative, P=positive)

Bt11 Participant #	Sample 1 0.0%	Sample 2 0.1%	Sample 3 3.0%	Sample 4 0.1%	Sample 5 1.5%	Sample 6 0.0%
1785	N	P	P	P	P	N
1786	N	P	P	P	P	N
1854	P	N	P	N	P	N
1858	N	P	P	P	P	N
1859	N	P	P	P	P	N
1892	N	P	P	P	P	N
1895	N	P	P	P	P	N
2034	N	P	P	P	P	N
2054	N	P	P	P	P	N
2060	N	P	P	P	P	N
2075	N	P	P	P	P	N
2095	N	N	P	P	P	N
2112	N	P	P	P	P	N
2113	N	P	P	P	P	N
2132	N	P	P	N	P	N
2692	N	P	P	P	P	N
2707	N	P	P	P	P	N
2724	N	N	P	P	P	N
2726	N	P	P	P	P	N
2808	N	P	P	P	P	P

Number of Results	20	20	20	20	20	20
# Negative	19	3	0	2	0	19
# Positive	1	17	20	18	20	1
% Correct	95.0%	85.0%	100.0%	90.0%	100.0%	95.0%
% Incorrect	5.0%	15.0%	0.0%	10.0%	0.0%	5.0%

Table 16: Percentage of correct results in qualitative reports for Bt11 for all participants.
 Table 16 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	120
# Reported Incorrect	7
% Correct	94.2%
# of Provided Positives (P)	77
# of False Negatives	5
%False Negative	6.1%
# of Provided Negatives (N)	43
# of False Positives	2
%False Positive	4.4%

Table 17: Qualitative results for corn fortified with NK603 for all participants (DNA-based assays).

NK603	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Participant #	0.0%	0.5%	0.0%	0.1%	0.5%	5.0%
1785	N	P	N	P	P	P
1854	N	P	N	P	P	P
1859	N	P	N	P	P	P
1895	N	P	N	P	P	P
2034	N	P	N	P	P	P
2054	N	P	N	P	P	P
2060	N	P	N	P	P	P
2075	N	P	N	P	P	P
2095	N	N	N	N	N	N
2112	N	P	N	P	P	P
2113	N	P	N	P	P	P
2692	N	P	N	P	P	P
2707	N	P	N	P	P	P

Number of Results	13	13	13	13	13	13
# Negative	13	1	13	1	1	1
# Positive	0	12	0	12	12	12
% Correct	100.0%	92.3%	100.0%	92.3%	92.3%	92.3%
% Incorrect	0.0%	7.7%	0.0%	7.7%	7.7%	7.7%

Table 18: Percentage of correct results in qualitative reports for NK603 for all participants. Table 18 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	78
# Reported Incorrect	4
% Correct	94.9%
# of Provided Positives (P)	48
# of False Negatives	4
%False Negative	7.7%
# of Provided Negatives (N)	30
# of False Positives	0
%False Positive	0.0%

Table 19: Qualitative results for corn fortified with Herculex for all participants (DNA-based assays). (N=negative, P=positive)

Herculex	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Participant #	0.0%	0.1%	1.0%	0.0%	0.0%	0.0%
1781	N	P	P	N	N	N
1785	N	P	P	N	N	N
1859	N	P	P	N	N	N
1895	N	P	P	N	N	N
2034	N	P	P	N	N	N
2060	N	N	P	N	P	N
2095	N	N	N	N	N	N
2112	N	P	P	N	N	N
2113	N	P	P	N	N	P
2692	N	P	P	N	N	N
2707	N	P	P	N	N	N

N	11	11	11	11	11	11
# Neg	11	2	1	11	10	10
# Pos	0	9	10	0	1	1
% Correct	100.0%	81.8%	90.9%	100.0%	90.9%	90.9%
% Incorrect	0.0%	18.2%	9.1%	0.0%	9.1%	9.1%

Table 20: Percentage of correct results in qualitative reports for Herculex for all participants. Table 20 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	66
Reported Incorrect	5
% Correct	92.4%
# of Provided Positives (P)	21
# of False Negatives	3
%False Negative	12.5%
# of Provided Negatives (N)	45
# of False Positives	2
%False Positive	4.3%

Table 21: Qualitative results for corn fortified with MON863 for all participants (DNA-based assays). (N=negative, P=positive)

MON863	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Participant #	0.0%	0.5%	1.5%	0.1%	0.0%	0.0%
1785	N	P	P	P	N	N
1854	N	P	P	P	N	P
1859	N	P	P	P	N	N
1895	N	P	P	P	N	N
2034	N	P	P	P	N	N
2054	N	P	P	P	N	P
2060	N	P	P	P	P	N
2075	N	P	P	P	N	N
2095	N	N	N	N	N	N
2113	N	N	P	P	P	P
2692	N	P	P	P	N	N
2707	N	P	P	P	N	N

N	12	12	12	12	12	12
# Neg	12	2	1	1	10	9
# Pos	0	10	11	11	2	3
% Correct	100.0%	83.3%	91.7%	91.7%	83.3%	75.0%
% Incorrect	0.0%	16.7%	8.3%	8.3%	16.7%	25.0%

Table 22: Percentage of correct results in qualitative reports for MON863 for all participants. Table 22 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	72
# Reported Incorrect	9
% Correct	87.5%
# of Provided Positives (P)	37
# of False Negatives	4
%False Negative	9.8%
# of Provided Negatives (N)	35
# of False Positives	5
%False Positive	12.5%

Table 23: Qualitative results for soybeans fortified with CP4 EPSPS for all participants (DNA-based assays). (N=negative, P=positive)

CP4 EPSPS	Sample 1	Sample 2	Sample 3
Participant #	0.00	0.50	0.10
1854		P	P
		P	
1858		P	P
			P
1859	N		P
	N		
1875		P	P
			P
1895	N		P
	N		
2054	N	P	P
2058	N	P	P
2095		N	N
			N
2100		P	
		P	
		P	
2108		N	N
		N	
2112	N		
	N		
	N		
2113	N	P	P
2122	N		P
	N		
2126	N		P
			P
2693	N		P
			P
2707	N		P
	N		
2717		P	P
			P
2721		P	N
			N
2724	N	P	P

Number of Results	17	16	24
# Negative	17	3	5
# Positive	0	13	19
% Correct	100.0%	81.3%	79.2%
% Incorrect	0.0%	18.8%	20.8%

Table 24: Percentage of correct results in qualitative reports for CP4 EPSPS for all participants. Table 24 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	57
# Reported Incorrect	8
% Correct	86.0%
# of Provided Positives (P)	32
# of False Negatives	8
%False Negative	20.0%
# of Provided Negatives (N)	25
# of False Positives	0
%False Positive	0.0%

Table 25: Percentage of correct results in Qualitative reports for each transgenic event for all participants. N = number of results submitted. Table 2 includes information for the provided positive (+) and negative (-) results and the corresponding % false positive and % false negative results for each event. [(incorrectly reported result /Number (+) or (-)) x 100]

Event	35S	NOS	T25	CBH351	MON810	GA21	E176	Bt11	NK603	Herculex	MON863	RUR
N	234	222	95	114	108	96	108	120	78	66	72	57
Reported Incorrect	4	6	4	7	13	8	2	7	4	5	9	8
% Correct	98.3%	97.3%	95.8%	93.9%	88.0%	91.7%	98.1%	94.2%	94.9%	92.4%	87.5%	86.0%
Provided (+)	193	181	53	39	75	58	54	77	48	21	37	32
False Negatives	3	5	4	3	5	7	1	5	4	3	4	8
%False Negative	1.5%	2.7%	7.0%	7.1%	6.3%	10.8%	1.8%	6.1%	7.7%	12.5%	9.8%	20.0%
Provided (-)	41	41	42	75	33	38	54	43	30	45	35	25
False Positives	1	1	0	4	0	1	1	2	0	2	5	0
%False Positive	2.4%	2.4%	0.0%	5.1%	0.0%	2.6%	1.8%	4.4%	0.0%	4.3%	12.5%	0.0%

Figure 1. Group average of percentage correct for Qualitative reports on each event combined with the total number of results reported using DNA-based testing. Events labeled as 35S through MON863 were assayed in corn samples. The soybean samples contained the glyphosate tolerant event (RoundUp Ready/RUR) producing the CP4 EPSPS protein. Numbers embedded in the histogram represent the total number of reported results for that event. Data are shown on a composite basis (i.e., all participants results combined)

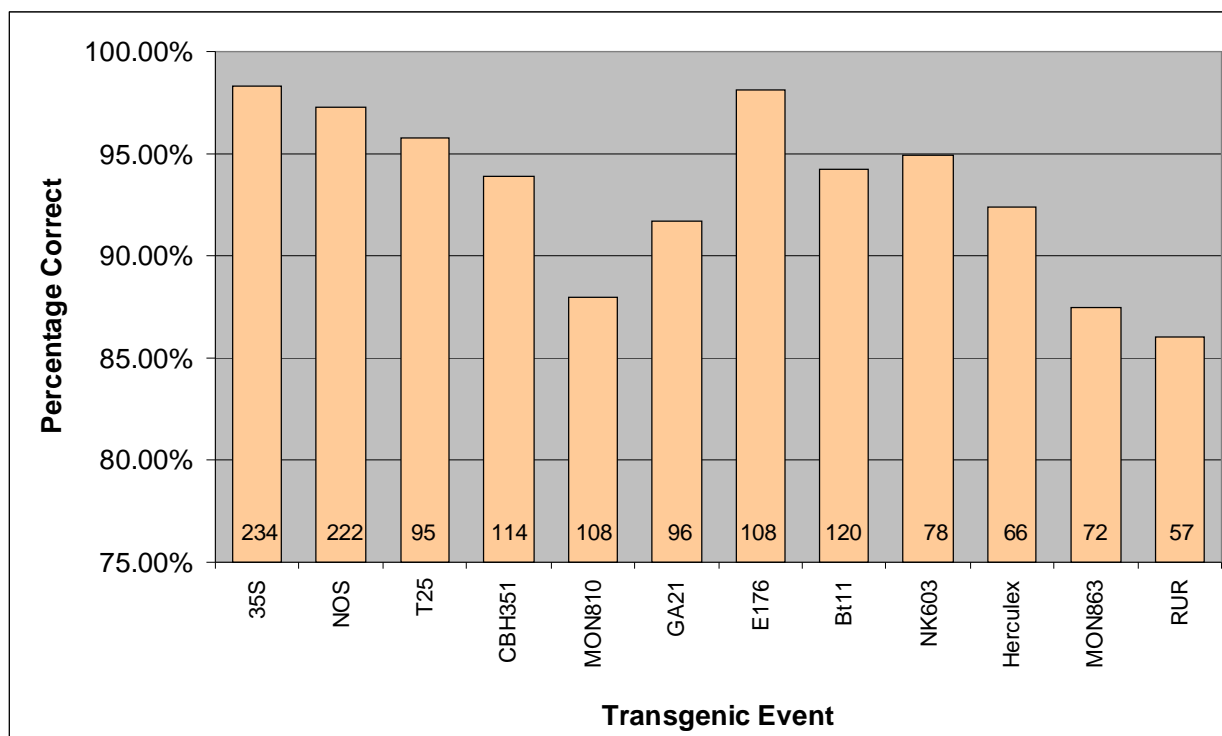


Table 26: Qualitative results for corn fortified with T25 - Lateral Flow Strip (LFS) Testing (Protein-based testing). (N=negative, P=positive)

T25	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Participant #	0.0	1.0	0.0	0.0	0.1	5.0
2058 LFS	N	N/A	N	P	N/A	P

n	1		1	1		1
# Neg	1		1	0		0
# Pos	0		0	1		1
% Correct	100.0%		100.0%	0.0%		0.0%

Table 27: Percentage of correct results in qualitative reports for T25 for all participants. (LFS) Table 27 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	4
Reported Incorrect	1
% Correct	75.0%
# of Provided Positive (P)	2
# of False Negatives	0
% False Negative	0.0%
# of Provided Negatives (N)	2
# of False Positives	1
% False Positive	33.3%

Table 28: Qualitative results for corn fortified with CBH351 - (Lateral Flow Strip and Enzyme-Linked Immunosorbent Assay (ELISA) (Protein-based assays). (N=negative, P=positive)

CBH351	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Participant #	0.0	0.0	0.0	0.1	0.0	1.5
1764 LFS	N	N	N	N/A	N	P
1843 PLATE	N	N	N	P	N	P
2058 LFS	N	N	N	P	N	P

Number of Results	2	2	1	2	2	2
# Negative	2	2	0	0	0	0
# Positive	0	0	1	2	2	2
% Correct	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 29: Percentage of correct results in qualitative reports for CBH351 for all participants.

Total # of Reported Results	17
Reported Incorrect	0
% Correct	100.0%
# of Provided Positives (P)	5
# of False Negatives	0
% False Negative	0.0%
# of Provided Negatives (N)	12
# of False Positives	0
% False Positive	0.0%

Table 30: Qualitative results for corn fortified with NK603 - Enzyme-Linked Immunosorbent Assay (ELISA). (N=negative, P=positive)

NK603	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Participant #	0.0	0.5	0.0	0.1	0.5	5.0
1843 PLATE	N	N/A	N	N/A	N/A	P

Number of Results	1		1			1
# Negative	1		1			0
# Positive	0		0			1
% Correct	100.0%		100.0%			0.0%

N/A = Fortification level less than Minimum Detectable Level (MDL).

Table 31: Percentage of correct results in qualitative reports for NK603 for all participants. Table 31 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	3
Reported Incorrect	0
% Correct	100.0%
# of Provided Positives (P)	1
# of False Negatives	0
% False Negative	0.0%
# of Provided Negatives (N)	2
# of False Positives	0
% False Positive	0.0%

Table 32: Qualitative results for corn fortified with Herculex - (Lateral Flow Strip and Enzyme-Linked Immunosorbent Assay (ELISA) (Protein-based assays). (N=negative, P=positive)

Herculex	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Participant #	0.0	0.1	1.0	0.0	0.0	0.0
1843 PLATE	N	P	P	N	N	P
2058 LFS	N	P	P	N	N	N

Number of Results	2	2	2	2	2	2
# Negative	2	0	0	2	2	1
# Positive	0	2	2	0	0	1
% Correct	100.0%	100.0%	100.0%	100.0%	100.0%	50.0%

Table 33: Percentage of correct results in qualitative reports for Herculex for all participants. Table 33 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	12
Reported Incorrect	1
% Correct	91.7%
# of Provided Positives (P)	5
# of False Negatives	0
% False Negative	0.0%
# of Provided Negatives (N)	7
# of False Positives	1
% False Positive	12.5%

Table 34: Qualitative results for corn fortified with MON863 - Enzyme-Linked Immunosorbent Assay (ELISA). (N=negative, P=positive)

Mon863	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Participant #	0.0	0.1	1.0	0.0	0.0	0.0
1843 PLATE	N	P	P	P	N	N

Number of Results	1	1	1	1	1	1
# Negative	1	0	0	0	1	1
# Positive	0	1	1	1	0	0
% Correct	100.0%	100.0%	100.0%	0.0%	100.0%	100.0%

Table 35: Percentage of correct results in qualitative reports for MON863 for all participants. Table 35 also includes % False Positive and % False Negative for this event.

Total # of Reported Results	6
Reported Incorrect	1
% Correct	83.3%
# of Provided Positives (P)	3
# of False Negatives	0
% False Negative	0.0%
# of Provided Negatives (N)	3
# of False Positives	1
% False Positive	25.0%

Table 36: Qualitative results for corn fortified with Cry1Ab protein - Enzyme-Linked Immunosorbent Assay (ELISA). (N=negative, P=positive)

Cry1Ab	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Participant #	N	P	P	P	P	P
1843 PLATE	N	P	P	P	P	P

Cry1Ab contains Bt11 (high-expressin

Number of Results	1	1	1	1	1	1
# Negative	1	0	0	0	0	0
# Positive	0	1	1	1	1	1
% Correct	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

g in kernels, MON810 (medium-expressing in kernels), and Event 176 (low-expressing in kernels).

- Sample 1: contained no Bt11, no MON810, and no Event 176;
- Sample 2: contained 0.1% Bt11, no MON810, and no Event 176;
- Sample 3: contained 3.0% Bt11, 0.4% MON810, and 0.8% Event 176;
- Sample 4: contained 0.1% Bt11, 0.1% MON810, and 0.1% Event 176;
- Sample 5: contained 1.5% Bt11, 5.0% MON810, and 0.5% Event 176;
- Sample 6: contained no Bt11, 0.5 % MON810, and no Event 176.

Table 37: Qualitative results for soybeans fortified with CP4 EPSPS for all participants (Lateral Flow Strip and Enzyme-Linked Immunosorbent Assay (ELISA) (Protein-based assays). (N=negative, P=positive)

CP4 EPSPS	Sample 1	Sample 2	Sample 3
	0.00	0.50	0.10
1764 LFS	N		P
			P
1858 LFS		P	P
		P	
2126 LFS	N		P
			P
2126 Plate	N		P
			P
1843 Plate	N	P	
	N		

Number of Results	5	3	7
# Negative	5	0	0
# Positive	0	3	7
% Correct	100.0%	100.0%	100.0%

Table 38: Percentage of correct results in qualitative reports for CP4 EPSPS for all participants.

Total # of Reported Results	15
# Reported Incorrect	0
% Correct	100.0%
# of Provided Positives (P)	10
# of False Negatives	0
%False Negative	0.0%
# of Provided Negatives (N)	5
# of False Positives	0
%False Positive	0.0%

Table 39: Quantitative Results and z-Scores for Corn Fortified with T25 using DNA-based Assays

Event: T25						
Fortification Level (w/w%)	Fortified @ 0.1 (w/w%)		Fortified @ 1.0 (w/w%)		Fortified @ 5.0 (w/w%)	
Participant Number	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score
1754	0.2	0.5	2.0	1.5	7.5	1.1
1755	0.1	0.0	1.2	0.3	3.5	-0.7
1769	0.08	-0.1	0.62	-0.6	2.12	-1.3
1770	0.1	0.0	1.5	0.7	4.9	0.0
1773	0.20	0.5	2.00	1.5	9.00	1.8
1778	0.1	0.0	1.1	0.1	4.4	-0.3
1780	0.10	0.0	1.40	0.6	5.08	0.0
1870	0.10	0.0	1.30	0.4	6.60	0.7
1871	0.10	0.0	1.20	0.3	5.20	0.1
1875	0.02	-0.4	0.22	-1.1	1.03	-1.8
2033	*0.8	3.6	0.7	-0.4	1.4	-1.6
2044	0.1	0.0	0.5	-0.7	1.5	-1.6
2050	0.1	0.0	0.8	-0.3	3.0	-0.9
2057	0.30	1.0	1.40	0.6	2.90	-0.9
2098	0.22	0.6	1.19	0.3		
2128	0.04	-0.3	0.32	-1.0	1.34	-1.6
2129	*0.42	1.6	3.00	2.9	3.00	-0.9

Table 40: Quantitative Results and z-Scores for Corn Fortified with MON810 using DNA-based Assays

Event: MON810								
Fortification Level (w/w%)	Fortified @ 0.1 (w/w%)		Fortified @ 0.4 (w/w%)		Fortified @ 0.5 (w/w%)		Fortified @ 5.0 (w/w%)	
Participant Number	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score
1754	0.1	0.0	0.3	-0.3	0.2	-0.5	1.1	-3.3
1755	0.1	0.0	0.3	-0.3	*3.3	4.2	4.0	-0.8
1763	0.0	-2.6	0.3	-0.4	0.3	-0.3	2.4	-2.2
1769	0.04	-1.6	0.47	0.2	0.22	-0.4	2.54	-2.1
1770	0.1	0.0	0.4	0.0	0.40	-0.2	4.00	-0.8
1773	0.00	-2.6	0.10	-0.9	0.20	-0.5	1.50	-3.0
1778	0.1	0.0	0.4	0.0	0.3	-0.3	2.5	-2.1
1780	0.11	0.3	0.48	0.3	0.50	0.0	4.65	-0.3
1781	0.1	0.0	0.3	-0.3	0.3	-0.3	2.9	-1.8
1783	0.10	0.0	0.40	0.0	0.30	-0.3	3.50	-1.3
1847	0.055	-1.2	0.030	-1.2	0.236	-0.4	1.935	-2.6
1870	0.06	-1.1	0.20	-0.6	0.25	-0.4	2.60	-2.0
1871	0.07	-0.8	0.15	-0.8	0.30	-0.3	3.20	-1.5
1875	0.02	-2.1	0.11	-0.9	0.11	-0.6	1.27	-3.1
1892	0.10	0.0	0.50	0.3	0.40	-0.2	2.90	-1.8
2033	0.1	0.0	*1.7	4.1	0.0	-0.8	0.0	-4.2
2044	0.1	0.0	0.3	-0.3	0.1	-0.6	1.5	-3.0
2050	0.1	0.0	0.5	0.3	0.8	0.5	5.0	0.0
2057	0.10	0.0	0.00	-1.3	*1.4	1.4	2.00	-2.5
2098	0.12	0.5	0.26	-0.4			3.25	-1.5
2128	0.05	-1.3	0.28	-0.4	0.37	-0.2	3.13	-1.6
2129	0.10	0.0	0.26	-0.4	0.19	-0.5	2.68	-2.0
2694	0.10	0.0	0.26	-0.4	0.25	-0.4	2.00	-2.5
2716	0.10	0.0	0.10	-0.9	0.10	-0.6	0.49	-3.8
2719	0.10	0.0	0.27	-0.4	0.28	-0.3	3.20	-1.5
2726	0.00	-2.6	0.17	-0.7	0.23	-0.4	3.55	-1.2

(Note: z-scores outside the satisfactory range, i.e. $z > 2$, are shown in **bold**.)

* This result was determined to be an outlier and will not be included in the statistical analysis of the data.

Table 41: Quantitative Results and z-Scores for Corn Fortified with GA21 using DNA-based Assays

Event: GA21								
Fortification Level (w/w%)	Fortified @ 0.1 (w/w%)		Fortified @ 0.1 (w/w%)		Fortified @ 1.5 (w/w%)		Fortified @ 1.5 (w/w%)	
Participant Number	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score
1754	0.1	0.0	0.1	0.0	2.0	0.8	1.0	-1.3
1755	0.1	0.0	0.1	0.0	1.5	0.0	1.4	-0.3
1770	0.1	0.0	0.10	0.0	1.60	0.2	0.80	-1.8
1773	0.10	0.0	0.10	0.0	1.80	0.5	1.20	-0.8
1778	0.1	0.0	0.2	0.6	1.5	0.0	1.4	-0.3
1780	0.08	-0.2	0.08	-0.1	1.43	-0.1	1.19	-0.8
1781	0.1	0.0	0.1	0.0	2.4	1.4	1.9	1.1
1783	0.15	0.4	0.10	0.0	3.00	2.3	1.40	-0.3
1870	0.10	0.0	0.10	0.0	1.30	-0.3	1.10	-1.1
1871	0.08	-0.2	0.07	-0.2	1.30	-0.3	1.30	-0.5
1875	0.02	-0.7	0.03	-0.4	1.66	0.2	1.19	-0.8
2033	*0.6	4.1	*0.8	4.1	0.0	-2.3	0.8	-1.8
2044	0.1	0.0	0.10	0.0	1.0	-0.8	0.8	-1.8
2050	0.1	0.0	0.10	0.0	1.5	0.0	0.8	-1.8
2057	*0.25	1.2	0.25	0.9	2.00	0.8	1.40	-0.3
2098	0.10	0.0			1.33	-0.3	1.01	-1.3
2128	0.13	0.2	0.15	0.3	2.22	1.1	1.90	1.1
2129	0.10	0.0	0.10	0.0	0.64	-1.3	0.66	-2.2
2694	0.13	0.2	0.10	0.0	1.34	-0.2	1.22	-0.7
2716	0.10	0.0	0.10	0.0	0.92	-0.9	0.48	-2.7

Table 42: Quantitative Results and z-Scores for Corn Fortified with E176 using DNA-based Assays

Event: E176						
Fortification Level (w/w%)	Fortified @ 0.1 (w/w%)		Fortified @ 0.5 (w/w%)		Fortified @ 0.8 (w/w%)	
Participant Number	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score
1754	0.1	0.0	0.1	-2.7	0.4	-1.2
1755	0.1	0.0	0.2	-2.0	0.4	-1.2
1769	0.05	-0.6	0.31	-1.3	0.54	-0.8
1770	0.1	0.0	0.4	-0.7	1.0	0.6
1773	0.00	-1.1	0.10	-2.7	0.30	-1.5
1778	0.1	0.0	0.4	-0.7	1.0	0.6
1780	0.10	0.0	0.31	-1.3	0.75	-0.1
1781	0.1	0.0	0.3	-1.3	0.7	-0.3
1870	0.10	0.0	0.40	-0.7	0.80	0.0
1871	0.08	-0.2	0.30	-1.3	0.50	-0.9
1875	0.10	0.0	0.42	-0.5	0.73	-0.2
1892	*0.3	2.2	0.50	0.0	1.20	1.2
2033	0.1	0.0	0.0	-3.3	1.7	2.6
2044	0.1	0.0	0.5	0.0	1.0	0.6
2050	*0.4	3.3	0.5	0.0	0.8	0.0
2057	*0.25	1.7	0.25	-1.7	0.75	-0.1
2060	n/a		0.25	-1.7	0.45	-1.0
2098	0.11	0.1	0.54	0.3	1.02	0.6
2128	0.08	-0.2	0.42	-0.5	0.91	0.3
2129	0.10	0.0	0.10	-2.7	0.17	-1.8
2694	0.10	0.0	0.34	-1.1	0.79	0.0
2716	0.10	0.0	0.10	-2.7	0.26	-1.6
2719	0.10	0.0	0.12	-2.5	0.47	-1.0
2726	0.00	-1.1	0.38	-0.8	0.75	-0.1

(Note: z-scores outside the satisfactory range, i.e. $z > 2$, are shown in **bold**.)

* This result was determined to be an outlier and will not be included in the statistical analysis of the data.

Table 43: Quantitative Results and z-Scores for Corn Fortified with Bt11 using DNA-based Assays

Event: Bt11								
Fortification Level (w/w%)	Fortified @ 0.1 (w/w%)		Fortified @ 0.1 (w/w%)		Fortified @ 1.5 (w/w%)		Fortified @ 3.0 (w/w%)	
Participant Number	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score
1754	0.2	1.7	0.2	1.4	1.9	0.9	5.4	1.8
1755	0.1	0.0	0.1	0.0	1.1	-0.9	2.9	-0.1
1769	0.10	0.0	0.10	0.0	1.16	-0.8	3.20	0.1
1770	0.2	1.7	0.2	1.4	1.3	-0.5	3.7	0.5
1773	0.20	1.7	0.20	1.4	1.40	-0.2	5.00	1.5
1778	0.1	0.0	0.1	0.0	1.4	-0.2	3.2	0.1
1780	0.12	0.3	0.11	0.1	1.43	-0.2	3.15	0.1
1781	0.1	0.0	0.1	0.0	1.8	0.7	4.5	1.1
1783	0.17	1.2	0.20	1.4	1.70	0.5	5.00	1.5
1870	0.20	1.7	0.15	0.7	1.50	0.0	2.60	-0.3
1871	0.08	-0.3	0.17	1.0	1.30	-0.5	3.50	0.4
1875	0.09	-0.2	0.07	-0.4	1.41	-0.2	2.98	0.0
2033	0.0	-1.7	0.0	-1.4	0.1	-3.2	0.8	-1.6
2044	0.0	-1.7	0.30	2.8	0.5	-2.3	0.5	-1.9
2050	0.1	0.0	0.20	1.4	1.5	0.0	3.0	0.0
2057	0.14	0.7	0.21	1.6	1.10	-0.9	2.20	-0.6
2098	0.12	0.3	0.10	0.0	1.47	-0.1	3.38	0.3
2129	0.10	0.0	0.10	0.0	0.73	-1.7	2.41	-0.4
2694	0.10	0.0	0.10	0.0	1.12	-0.9	3.20	0.1
2716	0.10	0.0	0.25	2.1	0.61	-2.0	1.03	-1.5
2719	0.20	1.7	0.11	0.1	1.80	0.7	5.60	1.9

Table 44: Quantitative Results and z-Scores for Corn Fortified with Herculex using DNA-based Assays

Event: Herculex				
Fortification Level (w/w%)	Fortified @ 0.1 (w/w%)		Fortified @ 1.0 (w/w%)	
Participant Number	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score
1754	0.1	0.0	0.1	-3.2
1755	0.1	0.0	0.7	-1.1
1769	0.14	0.9	0.22	-2.8
1770	0.1	0.0	0.6	-1.4
1773	0.00	-2.3	0.20	-2.9
1778	0.1	0.0	0.4	-2.1
1780	0.11	0.2	0.65	-1.3
1847	0.017	-1.9	0.070	-3.3
1870	0.10	0.0	0.30	-2.5
1871	N/A		0.50	-1.8
1875	0.02	-1.8	0.40	-2.1
2033	0.1	0.0	0.8	-0.7
2044	0.1	0.0	0.5	-1.8
2050	0.1	0.0	0.8	-0.7
2057	0.10	0.0	1.20	0.7
2098	0.10	0.0	0.41	-2.1
2128	0.02	-1.8	0.16	-3.0
2129	0.12	0.5	0.22	-2.8
2694	0.10	0.0	0.43	-2.0
2716	0.10	0.0	0.13	-3.1
2726	0.00	-2.3	0.31	-2.5

(Note: z-scores outside the satisfactory range, i.e. $z > 2$, are shown in **bold**.)

* This result was determined to be an outlier and will not be included in the statistical analysis of the data.

Table 45: Quantitative Results and z-Scores for Corn Fortified with NK603 using DNA-based Assays

Event: NK603								
Fortification Level (w/w%)	Fortified @ 0.1 (w/w%)		Fortified @ 0.5 (w/w%)		Fortified @ 0.5 (w/w%)		Fortified @ 5.0 (w/w%)	
Participant Number	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score
1754	0.1	0.0	0.4	-0.3	0.4	-0.5	1.5	-1.6
1755	0.1	0.0	0.4	-0.3	0.2	-1.5	2.8	-1.0
1769	0.05	-0.3	0.29	-0.7	0.30	-1.0	2.24	-1.3
1770	0.1	0.0	0.4	-0.3	0.2	-1.5	3.6	-0.7
1773	0.00	-0.6	0.10	-1.3	0.10	-1.9	0.90	-1.9
1778	0.1	0.0	0.4	-0.3	0.5	0.0	4.9	0.0
1780	0.13	0.2	0.68	0.6	0.40	-0.5	5.22	0.1
1781	0.3	1.2	0.7	0.6	0.8	1.5	5.6	0.3
1783	0.20	0.6	1.30	2.6	0.60	0.5	5.00	0.0
1847	0.128	0.2	0.369	-0.4	0.307	-0.9	4.521	-0.2
1870	0.10	0.0	0.60	0.3	0.40	-0.5	4.80	-0.1
1871	0.15	0.3	0.50	0.0	0.40	-0.5	4.50	-0.2
1875	0.07	-0.2	0.36	-0.5	0.31	-0.9	4.72	-0.1
2033	*0.9	4.6	1.1	1.9	0.9	1.9	1.0	-1.9
2044	0.2	0.6	0.3	-0.6	0.4	-0.5	3.0	-0.9
2050	0.1	0.0	0.5	0.0	0.1	-1.9	2.0	-1.4
2057	0.15	0.3	0.50	0.0	0.50	0.0	3.00	-0.9
2098	0.08	-0.1	0.37	-0.4	0.28	-1.1		
2128	0.06	-0.2	0.37	-0.4	0.23	-1.3	2.47	-1.2
2129	0.10	0.0	0.10	-1.3	0.10	-1.9	0.31	-2.2
2694	0.10	0.0	0.50	0.0	0.29	-1.0	3.29	-0.8
2716	0.10	0.0	0.40	-0.3	0.18	-1.6	>2	
2719	0.13	0.2	0.90	1.3	0.24	-1.3	5.60	0.3
2726	0.15	0.3	1.10	1.9	0.46	-0.2	10.00	2.3

Table 46: Quantitative Results and z-Scores for Corn Fortified with MON 863 using DNA-based Assays

Event: MON863						
Fortification Level (w/w%)	Fortified @ 0.1 (w/w%)		Fortified @ 0.5 (w/w%)		Fortified @ 1.5 (w/w%)	
Participant Number	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score
1754	0.1	0.0	0.3	-0.8	1.0	-0.6
1755	0.1	0.0	0.6	0.4	1.9	0.4
1769	0.07	-0.3	0.26	-0.9	0.78	-0.8
1770	0.2	1.0	0.8	1.1	1.4	-0.1
1773	0.10	0.0	0.80	1.1	1.10	-0.4
1778	0.1	0.0	0.4	-0.4	1.5	0.0
1780	0.14	0.4	0.75	1.0	2.25	0.8
1781	0.1	0.0	0.7	0.8	2.0	0.6
1783	0.30	2.1	1.00	1.9	*4.7	3.6
1870	0.20	1.0	0.70	0.8	1.40	-0.1
1871	0.12	0.2	0.50	0.0	2.00	0.6
1875	0.00	-1.0	0.00	-1.9	1.36	-0.2
2033	0.0	-1.0	0.7	0.8	0.9	-0.7
2050	0.4	3.1	0.8	1.1	1.5	0.0
2057	0.20	1.0	0.60	0.4	1.60	0.1
2098	0.11	0.1	0.51	0.0	1.61	0.1
2128	0.08	-0.2	0.42	-0.3	1.38	-0.1
2129	0.10	0.0	0.26	-0.9	0.68	-0.9
2694	0.10	0.0	0.60	0.4	1.58	0.1
2716	0.10	0.0	0.19	-1.2	0.62	-1.0
2726	0.00	-1.0	0.14	-1.4	0.44	-1.2

(Note: z-scores outside the satisfactory range, i.e. $z > 2$, are shown in **bold**.)

* This result was determined to be an outlier and will not be included in the statistical analysis of the data.

Table 47: Quantitative Results and z-Scores for Corn Fortified with CBH351 using DNA-based Assays

Event: CBH351				
Fortification Level (w/w%)	Fortified @ 0.1 (w/w%)		Fortified @ 1.5 (w/w%)	
Participant Number	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score
1754	0.1	0.0	0.8	-0.6
1755	0.1	0.0	0.6	-0.7
1773	0.00	-1.1	1.10	-0.3
1778	0.1	0.0	1.2	-0.2
1781	0.1	0.0	1.4	-0.1
1870	0.00	-1.1	1.40	-0.1
1875	0.06	-0.4	1.56	0.0
2044	0.3	2.2	*5	2.9
2050	0.1	0.0	1.5	0.0
2057	0.20	1.1	0.70	-0.7
2128	0.20	1.1	*1.92	0.3
2129	0.10	0.0	0.62	-0.7

Table 48: Quantitative results for soybeans fortified with CP4 EPSPS for all participants using Enzyme-Linked Immunosorbent Assay (ELISA) (Protein-based assays).

Event: RUR		
Fortification Level (w/w%)	Fortified @ 0.1 (w/w%)	Fortified @ 0.5 (w/w%)
Participant Number	Reported Result (w/w%)	Reported Result (w/w%)
1754 Plate	0.1	0.4

(Note: z-scores outside the satisfactory range, i.e. $z > 2$, are shown in **bold**.)

* This result was determined to be an outlier and will not be included in the statistical analysis of the data.

Table 49: Quantitative Results and z-Scores for Soybeans Fortified with RUR using DNA-based Assays

Event: RUR				
Fortification Level (w/w%)	Fortified @ 0.1 (w/w%)		Fortified @0.5 (w/w%)	
Participant Number	Reported Result (w/w%)	z-Score	Reported Result (w/w%)	z-Score
1754	0.10	0.00	0.50	0.00
1755	0.10	0.00	0.50	0.00
1763	0.12	0.26	0.66	0.80
1764			0.88	1.89
1769			0.30	-0.99
1770	0.07	-0.39	0.30	-0.99
1773	0.90	-0.13		
1778	0.20	1.29	0.80	1.49
1780	0.20	1.29		
1783	0.20	1.29	0.70	0.99
1785			0.40	-0.50
1858	0.11	0.13	0.50	0.00
1870			0.51	0.05
1871			0.60	0.50
1875	0.11	0.13		
1892	0.09	-0.13	0.80	1.49
2033	0.09	-0.13	0.39	-0.55
2034			0.60	0.50
2044			0.40	-0.50
2050			0.50	0.00
2057			0.70	0.99
2060	0.11	0.13		
2075	0.11	0.13		
2098			0.10	-1.99
2118			0.50	0.00
2128	0.10	0.00	0.10	-1.99
2129	0.08	-0.26	0.10	-1.99
2198				
2204			0.50	0.00
2250	0.10	0.00		
2257			0.40	-0.50
2260			0.80	1.49
2266	0.14	0.52		
2275	0.26	2.07		
2275	0.14	0.52	0.71	1.04
2298			0.71	1.04
2318	0.10	0.00	0.62	0.60
2328		-1.29	0.61	0.55
2329	0.10	0.00	0.48	-0.10
2329		-1.29	0.60	0.50
2329	0.23	1.68	0.67	0.85
2329	0.18	1.03		
2329			0.42	-0.40
2329			0.48	-0.10
2329			0.51	0.05
2692	0.15	0.65	0.87	1.84
2693	0.10	0.00		
2693	0.10	0.00		
2694			0.67	0.85
2716			0.62	0.60
2716	0.17	0.90	0.65	0.75
2719	0.13	0.39	0.40	-0.50
2720	0.47	4.78	0.00	-2.49
2725	0.08	-0.26	0.41	-0.45
2725	0.07	-0.39		
2726			0.38	-0.60
2726			0.44	-0.30

(Note: z-scores outside the satisfactory range, i.e. $z > 2$, are shown in **bold**.)

Table 50: Descriptive statistics for participant’s reported quantifications relative to GIPSA fortification levels using DNA-based assays. N = total number of quantitative results reported; Reported Mean = average of all reported quantitations; Standard Deviation of all reported quantitations; %Relative Standard Deviation = [standard deviation/mean value x 100%] for the reported means; %R.E. = percentage relative error between the fortified and reported levels [reported value – fortification value / fortification value x 100]. Outliers were determined and eliminated from final results.

Event	N - Results	Fortification (% w/w)	Reported Mean (% w/w)	Standard Deviation	% Relative Standard Deviation	% Relative Error	Range of Reported Results
T25	15	0.1	0.12	0.07	59%	24%	0.02-0.42
T25	17	1.0	1.20	0.69	58%	20%	0.22-3.00
T25	16	5.0	3.90	2.36	60%	-22%	1.03-9.0
CBH351	12	0.1	0.11	0.08	75%	13%	0.0-0.30
CBH351	10	1.5	1.09	0.38	35%	-27%	0.60-5.0
MON810	26	0.1	0.08	0.04	48%	-22%	0.0-0.12
MON810	25	0.4	0.27	0.14	52%	-32%	0.0-1.7
MON810	23	0.5	0.28	0.16	58%	-45%	0.1-3.3
MON810	26	5.0	2.61	1.20	46%	-48%	0.0-5.0
GA21	36	0.1	0.10	0.03	25%	5%	0.02-0.8
GA21	40	1.5	1.33	0.65	48%	-11%	0.0-3.0
E176	20	0.1	0.09	0.03	37%	-14%	0.0-0.4
E176	24	0.5	0.30	0.15	51%	-40%	0.0-0.54
E176	24	0.8	0.72	0.34	47%	-9%	0.17-1.7
Bt11	42	0.1	0.13	0.07	49%	33%	0.0-0.3
Bt11	21	1.5	1.25	0.46	36%	-16%	0.1-1.9
Bt11	21	3.0	3.2	1.4	44%	7%	0.5-5.6
NK603	23	0.1	0.12	0.06	51%	17%	0.0-0.9
NK603	48	0.5	0.44	0.27	61%	-12%	0.1-1.3
NK603	22	5.0	3.68	2.14	58%	-26%	0.31-10.00
Herculex	20	0.1	0.08	0.04	53%	-19%	0.0-0.14
Herculex	21	1.0	0.43	0.28	65%	-57%	0.07-1.2
MON863	21	0.1	0.12	0.10	76%	25%	0.0-0.4
MON863	21	0.5	0.53	0.26	50%	5%	0.0-1.0
MON863	20	1.5	1.35	0.50	37%	-10%	0.44-4.7
RUR	31	0.1	0.13	0.05	39%	27%	0.07-0.47
RUR	45	0.5	0.52	0.20	39%	4%	0.00-0.88

Summary of Findings

Qualitative Sample Analysis

PCR: As evidenced by the “percentage correct scores” in Table 25 and Figure 1, participants were able to correctly identify most of the transgenic events in the corn test samples with greater than 86% accuracy through the use of conventional PCR. The best performance was observed for the detection of 35S event while RoundUp Ready (CP4 EPSPS) had the highest percentage of false negatives (20.0%) and MON863 had the highest percentage of false positives (12.5%). There appears to be a problem with sample 3 in Table 5 for samples fortified with T25. Results for this sample were not included in the qualitative reports.

Protein: Detecting the presence or absence of the protein product of the various transgenes was done through the use of either lateral flow strips (LFS) or enzyme-linked immunosorbent assays (ELISA) (Tables 26 through 38). Detection by lateral flow strips displayed good overall accuracy. In most cases, a correct determination was made on the corn test samples (note that most of the performance scores were 100% correct). In the three soybean test samples all participants were able to detect the gene product of the RoundUp Ready insert with 100% accuracy.

Quantitative Sample Analysis

Since the discovery of the polymerase chain reaction in 1985, analytical methods for the detection of nucleic acids have advanced rapidly. Real-time PCR continues to be the method of choice for the analyses of transgenic events in grains. The USDA/GIPSA proficiency program is designed to allow participating laboratories the ability to assess their individual methods for the detection and quantification of transgenic events and to compare the values of their measurements with peer laboratories. The analysis of proficiency test samples also enables laboratories to develop and validate new methods, and participation in a proficiency program is mandatory for ISO17025 certification. Overall, the performance of the participants testing for transgenic events in corn and soy was very good. GIPSA collected data for the October 2006 distribution and performed statistical analysis including a mean, standard deviation, % coefficient of variation, range, % relative error, and z-scores. Outliers were identified and not included in the statistical analyses. Laboratories with z-scores above +2 or below -2 are advised to carefully review their procedures. Participants are encouraged to seek confidential advice from the GIPSA staff to assist with this review. There was a characteristic inverse relationship between precision (% RSD) of reported quantifications and event fortification level for most of the fortified samples. Reported quantifications were highly variable at the lowest fortification level (0.1%) while being less variable at higher fortification levels.

For the assessment of residue analytical methods in crops, food, feed and environmental samples, it is recommended that an analytical method have a % RSD below 20%. It should be noted however, that the % RSD for all transgenic events in this study was greater than 20%, and this high level of inter-laboratory variability is consistent with observations from previous studies. The lack of internationally recognized reference material for all events, genetics, matrix effects and lack of standardized methods may be contributing factors to this observed variability. Monitoring and improving the performance of laboratories that use PCR for the detection of transgenic events in grains will improve marketing and reliability of this commodity. The USDA/GIPSA proficiency testing program should be a complement to other quality assurance tools used by laboratories as they monitor their performance and improve their analytical capabilities.

Note: It is important to understand that there are no internationally recognized standard reference materials for all transgenic events. The transgenic seed or grain used to prepare these samples was made available to GIPSA by the Life Science Organizations. Care was taken to ensure the transgenic material was either essentially 100% positive for the event, or adjusted accordingly. The fortified samples were prepared using a process that has been verified to produce homogenous mixes, and representative samples were analyzed to ensure proper fortification and homogeneity.

To obtain additional information on the USDA/GIPSA Proficiency Program, contact Mrs. Ganga Murthy, USDA/GIPSA Proficiency Program Manager, at US 816-891-0469, or by e-mail at Ganga.Murthy@usda.gov.

Appendix I: List of organizations who wished to be identified as a participant in the GIPSA October 2006 Proficiency Program.

A. Bio. C – Molecular Biology Division

Route de Samadet
64410 ARZACQ
France
Attn: Dr. F. Bois
Phone: 33 5 59 04 49 20
Fax: 33 5 59 04 49 30
bio.moleculaire@labo-abioc.fr

Applus Agroalimentario

Crta. Cabrils, s/n
08348-CABRILS
Barcelona
Spain
Attn: Imma Folch
Phone: 93 750 75 11
Fax: 93 753 39 54
imma.folch@irta.es
1867

Bayerisches Landesamt für Gesundheit und Lebensmittelsicherheit (LGL)

Bavarian Health and Food Safety Authority

Veterinarstr. 2
D-85764 Oberschleissheim
Germany
Attn: Sven Pecoraro, Ph.D.
Phone: +49-89-31560-585
Fax: +49-89-31560-458
Sven.Pecoraro@lgl.Bayern.de
2128

Bureau of Food and Drug Analysis (BFDA), DOH, Taiwan

161-2, Kuen Yang Street
Nankang
Taipei, Taiwan
Attn: Dr. Lih-Ching Chiueh
Phone: 02-26531273
Fax: 02-26531268
clc1025@nlf.gov.tw
1780

Bureau of Quality and Safety of Food

Department of Medical Sciences
88/7 Tiwanon Rd.
Amphur Muang
Nonthaburi 11000
Bangkok
Thailand
Attn: Ms Nittaya Phunbua
Phone: 66 (662) – 9510000. Ext 99514-5
Fax: 66 (662) – 9511021
npzuki@hotmail.com

CNTA-Laboratorio del Ebro

Ctra N-134 km 50
31570 San Adrian
Navarra
Spain
Attn: Blanca Jauregui, Ph.D.
Phone: 34 948 670159
Fax: 34 948 696127
bjaregui@cнта.es

Coordinadora de Calidad

Adolfo Alsina 1382
C1088AAJ
Capital Federal
Buenos Aires
Argentina
Attn: Mariana Astore
Phone: 5411- 4124 2124
Fax: 5411- 4124 2140
mariana.astore@sgs.com
2720

Eurofins GeneScan GmbH, Freiburg

Engesserstr. 4
79108 Freiburg i. Br.
Germany
Attn: Mrs. A. Moebes
Phone: +49-(0)761-5038
Fax: +49-(0)761-5038-111
gmoanalytics@genescan.com, a.moesbes@genescan.com

FASMAC CO., LTD

5-1-3 Midorigaoka, Atsugi-shi
Kanagawa 243-0041
JAPAN
Attn: Dr. Satoshi Futo
Phone: +81 46-295-8787
sfuto@fasmac.co.jp

Inspektorat Sanitarny**Wojewodzka Stacja Sanitarno-Epidemiologiczna w Białymstoku Pracownia Badan Zywnosci Genetycznej**

ul. Legionowa 8
15-440 Bialystock
Poland
Attn: Grazyna Ostrowska
Chief Sanitary Inspectorate, POLAND
Phone: 48, 508, 859, 706
Fax: 048 085 7404899
wsse-bialystok@sitech.pl

GeneScan USA, Inc.

2315 N. Causeway Blvd.
Metairie, LA 70001
Attn: Dr. Frank Spiegelhalter
Tel 504-398-0940
Fax: 504-398-0945
fspiegel@gmotesting.com
gregoryditta@eurofinsus.com
1754

Illinois Crop Improvement Association

3105 Research Road
Champaign, IL 61822
Attn: Doug Miller
Phone: 217-359-4053
Fax: 217-359-4075
dmiller@ilcrop.com or rjohnson@ilcrop.com
1843

Laboratoire National de la Protection des vegetaux

93 rue de Curembourg, 45 404 Fleury-les-Aubrais
National Laboratory of Crop Protection
Fleury-les-Aubrais
France
Attn: Frederic VEY, Head of lab
Phone:
Fax:
frederic.vey@agriculture.gouv.fr

Laboratorio CHMICO CCIAA TORINO

Via Vettimiglia 165
10127 Torino, Italy
Attn: Laura Bersani
Phone: 390116700111
Fax: 390116700100
laura.bersani@lab-to.camcom.it

Laboratorio COOP ITALIA

Via del Lavoro 6/8
40033 Casalecchio di Reno
Bologna, Italy
Attn: Dr. Martino Barbanera/ Dr. Sonia Scaramagli
Phone: 0039-051-596172
Fax: 0039-051596170
martino.barbanera@coopitalia.coop.it/sonia.scaramagli@coopitalia.coop.it

Laborzentrum Ettlingen-Karlsruhe

Facharztlabor Dr. med. Rurainski & Partner

Abteilung Lebensmittelanalytik

Otto-Hahn-Straße 18

76275 Ettlingen

Germany

Attn: Dr. Ralf Bauerndistel (Diplom-Biologe)

Phone: 0049 - (0) 7243 / 516 - 315 bzw. -425

Fax: 0049 - (0) 7243 / 516 - 166

r.bauerndistel@ls-medserv.de**2129****Landesuntersuchungsanstalt für das Gesundheits-und Veterinarwesen Sachsen**

Sitz Dresden

Amtliche Lebensmittelüberwachung

Fachgebiet 6.6

Jägerstraße 10

D – 01099 Dresden

Germany

Attn: Mrs. Gerda Hempel

Phone: +49-0351-8144-149

Fax: +49-0351-8144-227

gerda.hempel@lua.sms.sachsen.de**LAV Sachsen-Anhalt**

Freiimfelder Str. 66/68

D-061112 Halle

Germany

Attn: Dr. Dietrich Maede

Phone: +49 345 5643 222

Fax: +49 345 5643 439

dietrich.maede@hal.lav.ms.lsa-net.de**1870****Lifeprint GmbH DNA Analysis**

Industriestrasse 12

ul.ZWIRKII WIGURY 73

D-89257 Illertissen

Germany

Attn: Dr. Katin Newmann

Phone: 49 0 7303-951 95-22

Fax: 49 0 7303-951 95-55

neumann@lifeprint.de**LUFA Augustenberg**

D 76227 Karlsruhe

Nesslerstr. 23

Germany

Attn: Dr. Brigitte Roth

Phone: 49 721 9468 225

Fax: 49 721 9468 387

Brigitte.roth@lufa.bwl.de**2098****LUFA Speyer**

Obere Langgasse 40

D-67346 Speyer

Germany

Attn: Dr. Diana Hormisch

Phone: 49 6232 136 291

Fax: 49 6232 136 110

hormisch@lufa-speyer.de**Monsanto-France**

Monsanto SAS

BP-21-Croix de Pardies

40305 Peyrehorade cedex

France

Attn: Bruno Zaccomer

Phone: +33 558 73 60 99

Fax: +33 558 73 09 20

bruno.zaccomer@monsanto.com

National Institute of Biology

Vecna pot 111
1000 Ljubljana
Slovenia
Attn: Dr. Jana Zel
Phone: +386 1 4233388
Fax: +386 1 2573 847
jana.zel@nib.si

Niedersächsisches Landesamt für Verbraucherschutz und Lebensmittelsicherheit

Lebensmittelinstitut Braunschweig
Dresdenstrasse 2 + 6
38124 Braunschweig
Germany
Attn: Manuela Schulze, Ph.D.
Phone: 0531/6804 205
Fax: 0531/6804 201
Manuela.Schulze@LAVES.niedersachsen.de

Ocimum Biosolutions, LLC

8765 Guion Road, Suite #G
Indianapolis, IN 46268
Attn: Sujata Pammi, Ph.D.
Phone: 317-228-0600
Fax: 317-228-0700
sujata@ocimumbio.com

Pioneer Hi-Bred

10700 Justin Drive
Urbandale, IA 50322
Attn: Dr. Beni Kaufman.
Phone: 515-334-6478
Fax: 515-334-6431
benjamin.kaufman@pioneer.com

SGS Argentiana SA**SGS Bulgaria Ltd- Laboratory Varna**

Bulgarian Ship Hydrodynamics Center
Floor 7, 1 William Froude Str.
9003 Varna
Bulgaria
Attn: Magdalena Rasinska
Phone: +359(52)370988
Fax: +359(52)370979
bg_varna_laboratory@sgs.com

SGS do Brasil Ltda.

Av. Vereador Alfredo das Neves, 480
Alemoa
11095-510
Santos-SP Brazil
1783

SGS India Private Limited

201, Summel 11, S>G. Highway
Ahmedabad
Gujarat-380054
Attn: Purvi Shah, Laboratory Manager
Phone: + 91(79) 2685 4360
Fax: : + 91(79) 2685 4380
h/p + 91 98989 09220
Purvi.Shah@sgs.com
2717

SGS MULTILAB**ZI. ST. Guenault**

Weidenbaumsweg
7, Rue, Jean Mermoz
91031 Evry Courcouronnes
France
Attn: Karine Lacotte-Botelho
Phone: 00 33 1 69 36 68 71
Fax: 00 33 1 69 36 51 88
karine.lacotte@sgs.com
2719

Shanghai Academy of Agricultural Sciences

Agri-Biotech Center
Shanghai JiaoTong University
Dongchuan Road 800
Shanghai 200240 P.R.China 200240
Attn: Dabing Zhang
Phone: 0086-21-34205073
Fax: 0086-21-34204689
yvlltt@hotmail.com zhangdb@sjtu.edu.cn
2113

Silliker, Inc.

405 8th Ave SE
Cedar Rapids, IA 52401
Attn: Dr. Daniel Wetsch
Phone: 319-366-3570
Fax: 319-366-4018
daniel.wetsch@silliker.com

Sistemas Genomicos S. L.

Valencia Technology Parck,
C/Benjamin Franklin Avenue, 12
E-46980 Paterna Valencia
Spain
Attn: Dr. Carlos Ruiz Lafora or *Angela Pérez Pérez
Phone: 34 902 364 669
Fax: 34 902 364 670
carlos.ruiz@sistemasgenomicos.com www.sistemasgenomicos.com
1785

SRIPCPH

69 A, Tzar Simeon Str.
303 Sofia
Sofia, Bulgaria
Bulgaria
Attn: Dr. Lyubina Donkova
Phone: 359 2 9310527
Fax: 359 2 9311339
Idonkova@abv.bg
2725

State Plant Health & Seed Inspection Service

Varietal Identity and GMO Analysis of Central Lab.
ul.ZWIRKI I WIGURY 73
87-100 TORUN
Poland
Attn: Magdalena Rasinska
Phone: +48 056 623 56 98
Fax: +48 056 652 82 28
m.rasinska@piorin.gov.pl, a.domiza@piorin.gov.pl

State Veterinary Medicine and Diagnostic Center

Lejupes str. 3; Riga
Latvia 1076
sanita.puspure@vmdc.gov.lv
2132

Superinspect

Superinspect Ltda.
Rua do Comercio, 83
11010-141 Centro
Santos - Sa~o Paulo
Brazil
Attn: Viviane Formice Vianna
Phone: 55 13 3219 4000
Fax: 55 13 3219 1108
labgmo.sts@superinspect.com.br, pnm@superinspect.com.br

TECAM

Rua Fabia, 59
Sao Paulo – SP – CEP: 05051-030
Brazil
Attn: Dr. Janete Moura or Renata do Val
Phone: 55 11 3873 2553
Fax: 55 11 3862 8954
janete.moura@tecam.com.br microbiol@tecam.com.br

Thionville Surveying
5440 Pepsi Street
Harahan, LA 70123
Attn: Boyce Butler
Phone: 504-733-9603
Fax: 504-733-6457
Boyce@thionvillenola.com
1764

Tobacco Research Board
Kutsaga Station
Airport Ring Road
Box 1909
Harare
Zimbabwe
Attn: Dr. Dahlia Garwe
Phone: 263 4 575290/4
Fax: 263 4 575288
Dahlia_Garwe@kutsaga.co.zw

Ukrainian Laboratory of Quality and Safety
Attn: Dr. Vlad Spirydonov, Head of Molecular Diagnostic
15, Geroiv Oborony str.
Ukrainian Lab of quality & safety of ag products
Kyiv, 03041, Ukraine
Phone: 38044 527 84-82
Fax: 38044 527 84 82
spirydonov@nauu.kiev.ua
2693

USDA AMS FLS National Science Laboratory
801 Summit Crossing Place, Suite B
Gastonia, NC 28054
Attn: Michael Sussman
Phone: 704-867-3873
FAX: 704-853-2800
michael.sussman@usda.gov

Veterinary Public Health Center
Dr. Wang Zang Ming, Molecular Biology Branch
Food & Veterinary Administration Department,
Agri-Food and Veterinary Authority, 10 Perahu Road
Singapore, Republic of Singapore, 718837
Attn: Dr. Wang Zang Ming
Phone: 65-67952884
Fax: 65-68619491
wang_zheng_ming@ava.gov.sg
2692

Warnex Research Inc
3885 boul. Industriel
Laval, Quebec Canada
H7L 4S3
Attn: Yvan côté, Ph.D./Francis Deshaies, Ph.D.
Phone: (450) 663-6724
Fax: (450) 669-2784
fdeshaies@warnex.ca ycote@warnex.ca

Wojewodzka Stacja Sanitarno-Epidemiologiczna w Białymstoku Pracownia Badan Zywnosci Genetycznej G3ówny Inspektorat Sanitarny
ul. Legionowa 8
15-099 Białystok
Poland
Attn: Grazyna Ostrowska
Chief Sanitary Inspectorate, POLAND
Phone: 48, 508, 859, 706
Fax: 048 085 7404899
wsse-bialystok@sitech.pl